4. The plurality of abrasive particles according to claim 3, wherein said fused, crystalline abrasive particles further comprise primary crystals of Al_2O_3.

5. The plurality of abrasive particles according to claim 3, wherein said fused, crystalline abrasive particles comprise colonies of said eutectic, and wherein said colonies have an average size of less than 100 micrometers.

6. The plurality of abrasive particles according to claim 5, wherein said colonies have an average size of less than 50 micrometers.

7. The plurality of abrasive particles according to claim 3, wherein said fused, crystalline abrasive particles comprise colonies of said eutectic, and wherein crystals making up said colonies are, on average, up to 10 micrometers in size.

8. The plurality of abrasive particles according to claim 7, wherein said crystals are, on average, up to 1 micrometer in size.

9. The plurality of abrasive particles according to claim 3, wherein said fused, crystalline abrasive particles further comprise comprises at least one of crystalline rare earth oxide or crystalline complex Al_2O_3·rare earth oxide.

10. The plurality of abrasive particles according to claim 3, wherein said fused, crystalline abrasive particles further comprise at least one of crystalline BaO, CaO, Cr_2O_3, CoO, Fe_2O_3, HfO_2, Li_2O, MgO, MnO, NiO, SiO_2, TiO_2, Na_2O, Sc_2O_3, SrO, V_2O_3, ZnO, or complex Al_2O_3·metal oxide thereof.

11. The plurality of abrasive particles according to claim 3, wherein said fused, crystalline abrasive particles have an average microhardness of at least 13 GPa.

12. The plurality of abrasive particles according to claim 3, wherein said complex Al_2O_3·Y_2O_3 further comprises cations selected from the group consisting of Cr, Ti, Sc, Fe, Mg, Ca, Si, Co, Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Th, Tm, Yb, and combinations thereof.

13. The plurality of abrasive particles according to claim 3, wherein a portion of said complex $Al_2O_3 \cdot Y_2O_3$ Al cations are substituted with at least one cation selected from the following cations: Cr, Ti, Sc, Fe, Mg, Ca, Si, and Co.

14. The plurality of abrasive particles according to claim 3, wherein a portion of said complex $Al_2O_3 \cdot Y_2O_3$ Y cations are substituted with at least one cation selected from the following cations: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Th, Tm, and Yb.

15. The plurality of abrasive particles according to claim 3, wherein a portion of said complex $Al_2O_3 \cdot Y_2O_3$ Y cations are substituted with at least one cation selected from the following cations: Fe, Ti, Mn, V, Cr, Co, Ni, Cu, Mg, Ca, and Sr.

16. The plurality of abrasive particles according to claim 2, said fused, crystalline abrasive particles further comprise primary crystals of $Y_3Al_5O_{12}$.

17. The plurality of abrasive particles according to claim 1, wherein said eutectic is eutectic of at least (a) crystalline ZrO_2, (b) crystalline Al_2O_3, and (c) crystalline complex $Al_2O_3 \cdot Y_2O_3$.

18. The plurality of abrasive particles according to claim 17 comprising at least 50 percent by volume, based on the total metal oxide volume of the respective particle, of said eutectic material.

19. The plurality of abrasive particles according to claim 18 comprising, on a theoretical oxide basis, at least 40 percent by weight Al_2O_3, based on the total metal oxide content the respective particle.

20. The plurality of abrasive particles according to claim 19, wherein said fused, crystalline abrasive particles comprise colonies of said eutectic, and wherein crystals making up said colonies are, on average, up to 10 micrometers in size.

21. The plurality of abrasive particles according to claim 19, wherein said fused, crystalline abrasive particles further comprise at least one of crystalline BaO, CaO, Cr_2O_3, CoO, Fe_2O_3, HfO_2, Li_2O, MgO, MnO, NiO, SiO_2, TiO_2, Na_2O, SrO, Sc_2O_3, V_2O_3, ZnO, or complex Al_2O_3·metal oxide thereof.

22. The plurality of abrasive particles according to claim 19, wherein said fused, crystalline abrasive particles have an average microhardness of at least 13 GPa.

23. The plurality of abrasive particles according to claim 2, wherein said eutectic is eutectic of at least (a) crystalline ZrO_2, (b) first crystalline complex $Al_2O_3 \cdot Y_2O_3$, and (c) second, different, crystalline complex $Al_2O_3 \cdot Y_2O_3$.

24. The plurality of abrasive particles according to claim 23 comprising at least 50 percent by volume, based on the total metal oxide volume of said particle, of said eutectic material.

25. The plurality of abrasive particles according to claim 24 comprising, on a theoretical oxide basis, at least 40 percent by weight Al_2O_3, based on the total metal oxide content said particle.

26. The plurality of abrasive particles according to claim 25, wherein said fused, crystalline abrasive particles comprise colonies of said eutectic, and wherein crystals making up said colonies are, on average, up to 10 micrometers in size.

27. The plurality of abrasive particles according to claim 25, wherein said fused, crystalline particles further comprise at least one of crystalline BaO, CaO, Cr_2O_3, CoO, Fe_2O_3, HfO_2, Li_2O, MgO, MnO, NiO, SiO_2, TiO_2, Na_2O, SrO, Sc_2O_3, V_2O_3, ZnO, or complex Al_2O_3·metal oxide thereof.

28. The plurality of abrasive particles according to claim 25, wherein said fused, crystalline abrasive particles have an average microhardness of at least 13 GPa.

Please cancel claim 29.

Please amend claims 30-35 as follows:

30. The plurality of abrasive particles according to claim ~~44~~ comprising at least 50 percent by volume, based on the total metal oxide volume of the respective particle, of said eutectic material.

31. The plurality of abrasive particles according to claim 30 comprising, on a theoretical oxide basis, at least 40 percent by weight Al_2O_3, based on the total metal oxide content the respective particle.

32. The plurality of abrasive particles according to claim 30, wherein said fused, crystalline abrasive particles comprise colonies of said eutectic, and wherein crystals making up said colonies are, on average, up to 10 micrometers in size.

33. The plurality of abrasive particles according to claim 30, wherein said fused, crystalline abrasive particles further comprise comprises at least one of crystalline BaO, CaO, Cr_2O_3, CoO, Fe_2O_3, HfO_2, Li_2O, MgO, MnO, NiO, SiO_2, TiO_2, Na_2O, SrO, Sc_2O_3, V_2O_3, ZnO, or complex Al_2O_3 metal oxide thereof.

34. The plurality of abrasive particles according to claim 30, wherein said fused, crystalline abrasive particles have an average microhardness of at least 13 GPa.

35. The plurality of abrasive particles according to claim 30 wherein at least a majority by weight of said crystalline ZrO_2 is cubic ZrO_2.

Please cancel claims ~~36-40~~, ~~42~~, and ~~43~~.

Please amend claims 46 and 52 as follows;

37 46. A method for making fused, crystalline abrasive particles comprising at least 20 percent by volume, based on the total volume of the respective particle, eutectic material, wherein said eutectic material comprises eutectic of at least (a) crystalline ZrO_2 and (b) at least two of (i) crystalline Al_2O_3, (ii) first crystalline complex $Al_2O_3 \cdot Y_2O_3$, or (iii) second, different, crystalline complex $Al_2O_3 \cdot Y_2O_3$, said method comprising:

F5 melting at least one Al_2O_3 source, at least one Y_2O_3 source, and at least one ZrO_2 source to provide a melt;

converting the melt to said fused, crystalline abrasive particles; and

grading said fused, crystalline abrasive particles to provide a plurality of abrasive particles having a specified nominal grade, said plurality of abrasive particles having a particle size distribution ranging from fine to coarse, wherein at least a portion of said plurality of abrasive particles is a plurality of said fused, crystalline abrasive particles.

43 52. A method for making fused, crystalline abrasive particles comprising at least 20 percent by volume, based on the total volume of the respective particle, eutectic material, wherein said eutectic material comprises eutectic of at least (a) crystalline complex $Al_2O_3 \cdot Y_2O_3$ and (b) crystalline ZrO_2, said method comprising:

F6 melting at least one Al_2O_3 source, at least one Y_2O_3 source, and at least one ZrO_2 source to provide a melt;

converting the melt to said fused, crystalline abrasive particles; and

grading said fused, crystalline abrasive particles to provide a plurality of abrasive particles having a specified nominal grade, said plurality of abrasive particles having a particle size distribution ranging from fine to coarse, wherein at least a portion of said plurality of abrasive particles is a plurality of said fused, crystalline abrasive particles.

60 69. A method of abrading a surface, said method comprising:

providing an abrasive article comprising a binder and a plurality of abrasive particles, wherein at least a portion of said abrasive particles are fused, crystalline abrasive particle comprising at least 20 percent by volume, based on the total volume of the respective particle, eutectic material, wherein said eutectic material comprises eutectic of at least (a) crystalline ZrO_2 and (b) at least two of (i) crystalline Al_2O_3, (ii) first crystalline complex $Al_2O_3 \cdot Y_2O_3$, or (iii) second, different, crystalline complex $Al_2O_3 \cdot Y_2O_3$;

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contacting at least one of said fused, crystalline abrasive particles with a surface of a workpiece; and

moving at least one of the contacted fused abrasive particle or said surface relative to the other to abrade at least a portion of said surface with the contacted fused abrasive particle.

63. A method of abrading a surface, said method comprising:

providing an abrasive article comprising a binder and a plurality of abrasive particles, wherein at least a portion of said abrasive particles are fused, crystalline abrasive particle comprising at least 20 percent by volume, based on the total volume of the respective particle, eutectic material, wherein said eutectic material comprises eutectic of at least (a) crystalline complex $Al_2O_3 \cdot Y_2O_3$ and (b) crystalline ZrO_2;

contacting at least one of said fused, crystalline abrasive particles with a surface of a workpiece; and

moving at least one of the contacted fused abrasive particle or said surface relative to the other to abrade at least a portion of said surface with the contacted fused abrasive particle.

Please add new claims 81-89:

81. The method according to claim 69 wherein said surface is selected from the group of metals consisting of aluminum, carbon steel, mild steel, tool steel, stainless steel, hardened steel, and titanium.

82. The method according to claim 69 wherein said surface is aluminum.

83. The method according to claim 69 wherein said surface is carbon steel.

84. The method according to claim 69 wherein said surface is mild steel.

85. The method according to claim 69 wherein said surface is tool steel.

86. The method according to claim 69 wherein said surface is stainless steel.

87. The method according to claim 69 wherein said surface is titanium.